CORPORATE HUMAN RESOURCE INFORMATION SYSTEM (CHRIS)

Year 2000 Risk Assessment

February 20, 1998

Introduction:

System Owner's Name: Nancy W. Tomford

Business Function: Personnel

Computer system: Corporate Human Resource Information System (CHRIS)

Consequences to business function due to the failure of the information system supporting it:

The failure of CHRIS would result in the inability to process personnel actions.

Possible ramifications to the Department if business function fails:

The failure of the business function would result in the inability to process pay adjustments based on personnel actions; this would in turn affect the processing of payroll, resulting in a loss of confidence on the part of employees. In addition, reporting relating to personnel would be interrupted.

Risk Assessment Results:

Internal	NOT COMPLIANT	***COMPLIANT***
External	NOT COMPLIANT	***COMPLIANT***
Infrastructure	***NOT COMPLIANT***	COMPLIANT
Testing	***NOT COMPLIANT***	COMPLIANT

Action Plan:

Infrastructure assessment	
FETC completes testing plan	MAR 1998
FETC completes execution of testing plan	SEP 1998
Testing assessment	
FETC/HR-4 completes System Test Plan	JUN 1998
Execution of Test Plan complete	MAR 1999

Section 1

Internal Assessment

Internal Assessment for: CHRIS NOT COMPLIANT ***COMPLIANT***

This section provides a method for determining the year 2000 compliance associated with the computer programs that comprise the system.

Step 1 -- System Inventory		
Yes	No	1. Does a complete inventory of all programs in the system exist?
Yes	No	2. Is a source code inventory available for all production programs?
Yes	No	3. Is there an inventory of data definitions (including temporary fields) for all data in the system?
Yes	No	4. Has the source code been scanned for date fields and related operations (preferably using an automated process)?
Yes	***No***	5. Date fields (including temporary fields) do **NOT** exist in this system?
Step 2 -- Date Handling		
Yes	No	6. Has it been determined that the system correctly performs all date operations with year 2000 dates? For example, sort on dates, perform comparisons of dates, make decisions based on dates, etc.
Yes	No	7. Has it been determined that the system correctly performs all leap year logic (i.e., the system calculates correctly the days of the week, months of the year, number of days since the beginning of the year, etc.)?
Yes	No	8. Is the correct century information obvious for any manipulations involving dates?
Yes	No	9. Has it been determined that any utility program provided by a commercial vendor, contractor, or another government agency correctly processes date information passed between the utility program and the system?

1-2. PeopleSoft (PS) Federal Human Resource Management System is a Commercial Off-the-Shelf application that has been certified as Year 2000 compliant; thus the inventories of programs and source code are retained by PS.

3-4. PeopleSoft Data Designer permits display of all data fields, including date fields, and their data definitions throughout any PeopleSoft application.

5. Date fields do exist in CHRIS.

6,8. From the time they were designed, the basic architecture of every PeopleSoft application has systematically accommodated four-digit dates. All PeopleSoft databases store date values in the YYYY/MM/DD format (although display of dates may accommodate user preferences). Further, sitting between the SQL databases and the applications is PeopleTools, the Windows-based environment that fully enforces the use of four-digit years, and thus requires that input to the databases must have the year specified as four digits. In point of fact, Year 2000 dates are already being used in CHRIS, and all date handling is correctly performed.

7. Processing of leap years is fully supported for both 20th and 21st centuries.

9. Only PeopleSoft utility programs are used, and all of these have been certified as Year 2000 compliant.

Section 2

External Assessment

(Preliminary Vulnerability Assessment)

External Assessment for: CHRIS NOT COMPLIANT ***COMPLIANT***

The table below provides a process for evaluating the threat from data the system receives from or provides to outside sources.

1.	***Yes***	No	Does the system receive data from another system and/or provide data to another system ?
2.	***Yes***	No	Does any data provided to another system (1) contain date information or (2) contain data that was selected because of a date?
3.	***Yes***	No	Has there been coordination with all recipients of information to ensure that year 2000 dates and data based on year 2000 dates are compatible with their system and are unambiguous?

1. CHRIS does not receive data from another system; however, it provides data to the DOE Payroll System (PAYS).

2. Data provided to PAYS contains both date information and data selected because of a date.

3. Co-ordination with the system owner of PAYS is ongoing to ensure that all dates and data based upon dates in PAYS will be compatible with those in CHRIS and that there will be no ambiguity.

Section 3

Infrastructure Assessment

Infrastructure Assessment for: CHRIS ***NOT COMPLIANT*** COMPLIANT

All personal computers, local area networks, computer centers, or related communications equipment must be year 2000 compliant or business could be threatened. This section provides a two-step process for evaluating the year 2000 dangers associated with the computer hardware, software, and communications supporting the system.

Step 1 -- Infrastructure Requirements.

Hardware Platform (e.g., specific PC, mainframe, minicomputer, etc.):
Compaq Proliant 5000, DEC Alpha 4100, and Intel-based desktop workstations

Database Management System(if appropriate): ORACLE 7.3.3 Relational Data Base Management System
Third Party Report Writer: SQRibe, Seagate CrystalReports
Third Party Development Tools: BEA, Tuxedo
Utilities (e.g., sorts, editors, graphics, etc.): all internal to PeopleSoft

Programming Languages Used (e.g., COBOL):
Microfocus COBOL, ANSI C

Communications (e.g., MODEMS, LANs, Internet, routers, leased lines, etc.):
Department of Energy Business Network (DOEBN) and appropriate communications hardware

Operations Center Services
Automated Scheduling: not using
Disaster Recovery (alternate site, data backup, etc.):
covered in the Federal Energy Technology Center (FETC) Disaster Recovery Plan and the CHRIS Systems Manual
Reports Distribution: not using
Specialized output (e.g., microfiche, graphics, etc.): not using

Commercial Off The Shelf Software:
PeopleSoft Federal Human Resource Management System (PS) v. 7.0 and associated tools and utilities

Step 2 -- Infrastructure Risk Determination.

Infrastructure Assessment Table (Filled out by Operations Support)

1.	Yes	***No***	Has Operations Support completed the implementation of year 2000 compliant hardware and software? The following is needed to definitively answer the above question: **!** installation of year 2000 compliant version of each software product **!** installation of year 2000 compliant models of all hardware components **!** integration testing of all components to demonstrate compliance
2.	Yes	***No***	Does Operations Support have the ability to test the above system in a simulated year 2000 environment (i.e., can the system clock be safely set or simulated to provide testing of future dates)?
3.	Yes	***No***	Does Operations Support have the capacity (e.g., disk space and CPU) to run year 2000 testing for the above named system?

1. Implementation is currently underway at FETC. Alan Delmastro is in the process of obtaining test programs, doing Year 2000 analysis, and documenting compliance.

2. The system clock on the DEC Alpha 4100 cannot safely be set to test future dates without making other applications inoperable; such testing can and will, however, be done on the workstations.

3. The only way to perform such testing would be on duplicate hardware, which would cost in excess of $130K; such an expense would exceed the cost of any possible failure. Again, however, testing can and will be run on the workstations.

Section 4

Year 2000 Testing Assessment

Testing Assessment for: CHRIS ***NOT COMPLIANT***
COMPLIANT

This section can be used to assess the danger to the computer system due to inadequate testing of the impact of year 2000.

Testing accounts for a large part of the total development or modification effort. Even if one believes that a system is year 2000 compliant, one cannot be sure until specific testing is done. A testing plan should indicate the steps necessary to perform unit testing on individual programs for date related problems. Following unit testing, integration testing checks the interaction between modules with test data rich with dates. Final testing must include a year 2000 simulation, which may require the use of a separate facility where system dates can be reset several times without impacting other production operations. Time must be allowed to accomplish regression testing (i.e., repeat previous testing if new problems are discovered) which involves a considerable amount of additional effort.

Yes	***No***	1. Does a detailed test plan exist that specifically exercises all year 2000 date processing functions in the system?
Yes	***No***	2. Has this test plan been successfully executed?

1. Testing of Year 2000 date processing functions will be included in the CHRIS System Test Plan to be completed by FETC with HR-4 support(K. Centeno/T. Bagdy); results of all system tests will be fully documented and maintained in the official Departmental records.

2. It is expected that testing will be completed by March 1999.